

ABSTRACT:**FLUID MONITORING APPARATUS AND METHODS**

This invention is generally concerned with apparatus and methods for monitoring fluids, in particular critical fluids such as lubricants, based upon evanescent wave techniques.

A sensor module, in particular for use with attenuated total internal (ATIR) reflection apparatus for optically determining the condition of a fluid, the sensor module comprising: an evanescent wave sensor; a module housing for said sensor; and an optical connector for connecting said sensor to said ATIR apparatus. Preferably the sensor comprises a tapered optical fibre with a high reflectivity mirror at one or both ends. Also attenuated total internal reflection (TIR) apparatus for the sensor.

Figure 30a